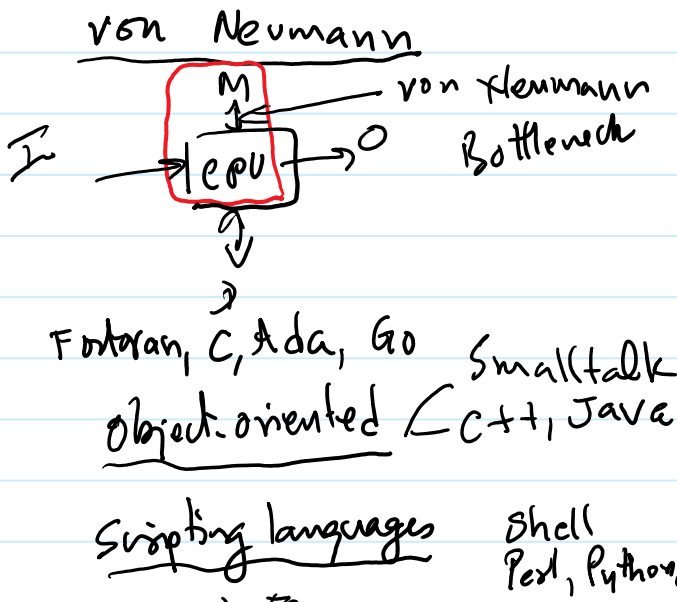
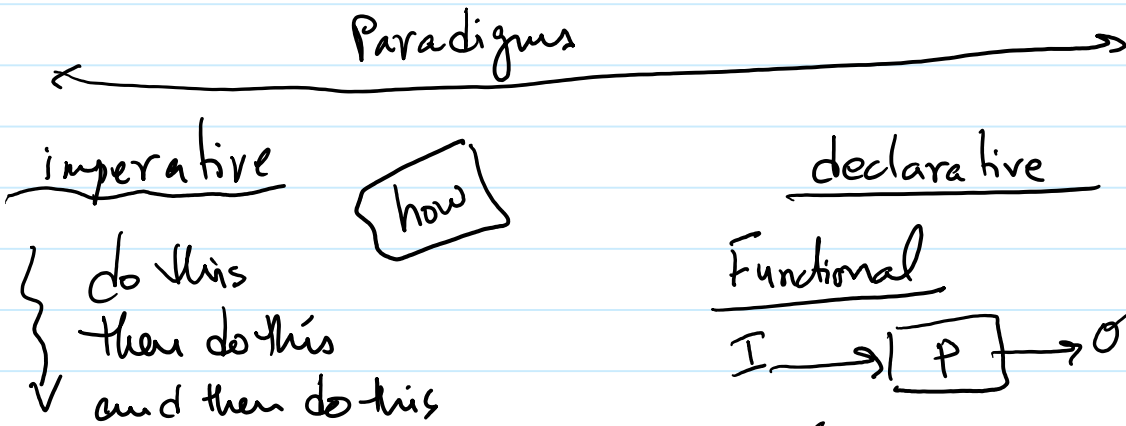


- * Disc on Semicolon Wars + "Truths"
- * The programming language spectrum
- * Top programming languages
- * Programming language implementations

Read § 1.1-1.5 from Soft

Low level vs High level



LIST, Haskell, Elm

Logic what

$gcd(A, B, G) \stackrel{if}{:=} A = B, G = A.$
 $gcd(A, B, G) \stackrel{and}{:=} A > B, C \leq A - B, gcd(C, B, G).$
 $gcd(A, B, G) \stackrel{and}{:=} B > A, C \leq B - A, gcd(A, C, G).$
 $? = gcd(a, b, G).$

(def gcd (a b)
 (cond ((eq a b) a)
 ((> a b) (gcd b (- a b))))

Scripting languages Shell Perl, Python, Ruby

tp50
 wordify
 count
 sort
 print 50

sort
print 50

```
def gcd(a, b):  
    while a != b:  
        if a > b:  
            a = a - b  
        else:  
            b = b - a  
    return a
```

(cond (leq a b) a)
((> a b) (gcd b (- a b)))
(t (gcd a (- b a))))

LISP

Prolog
SETL

other paradigms: data flow
event-driven programming

Sep 2020	Sep 2019	Change	Programming Language	Ratings	Change	
1	2	▲	C	15.95%	+0.74%	1972
2	1	▼	Java	13.48%	-3.18%	1995
3	3		Python	10.47%	+0.59%	1989
4	4		C++	7.11%	+1.48%	1983
5	5		C#	4.58%	+1.18%	2000
6	6		Visual Basic	4.12%	+0.83%	1991
7	7		JavaScript	2.54%	+0.41%	1995
8	9	▲	PHP	2.49%	+0.62%	1995
9	19	▲	R	2.37%	+1.33%	1976
10	8	▼	SQL	1.76%	-0.19%	1972
11	14	▲	Go	1.46%	+0.24%	2009
12	16	▲	Swift	1.38%	+0.28%	2014
13	20	▲	Perl	1.30%	+0.26%	1987
14	12	▼	Assembly language	1.20%	-0.08%	
15	15		Ruby	1.24%	+0.03%	1995
16	18	▲	MATLAB	1.10%	+0.04%	1978
17	11	▼	Groovy	0.99%	-0.52%	2003
18	33	▲	Rust	0.92%	+0.55%	2006
19	10	▼	Objective-C	0.85%	-0.99%	1983
20	24	▲	Dart	0.77%	+0.13%	2011

TIOBE Index

Haskell
 Julia
 Scala
 Fortran
 Lisp
 ABAP
 COBOL
 Prolog
 SML

Intel x86 architecture } x86
 AMD

ARM architecture ARM